Beaverstate
DENTAL SYSTEMS

Service Manual

S-3300

3 HP Automatic 2” dia. Post Mount Doctor’s System with Pneumatic Brake Flex Arm

Rev: 2 08/13/09

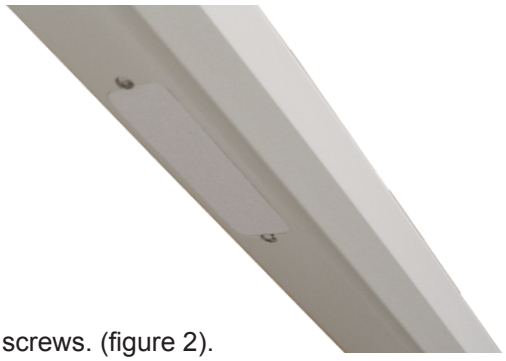
900-002

Tension Adjustment

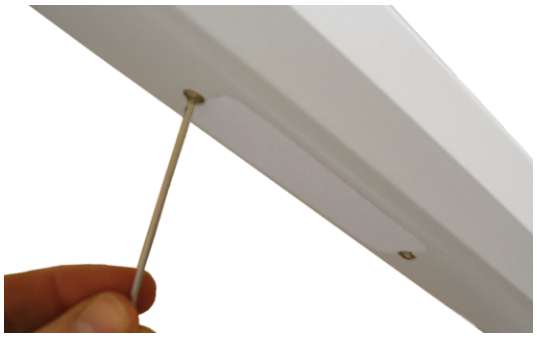
Notice: Using Flex Arm with the brake on will cause abusive and premature wear. The arm is factory set to balance with additional tray, tools and handpieces. Spring tension should be adjusted when necessary to cancel any drift when the brake is disengaged.

Flex Arm with Pheumatic Brake

1. Spring adjustment is under a white plastic cover. (figure 1).

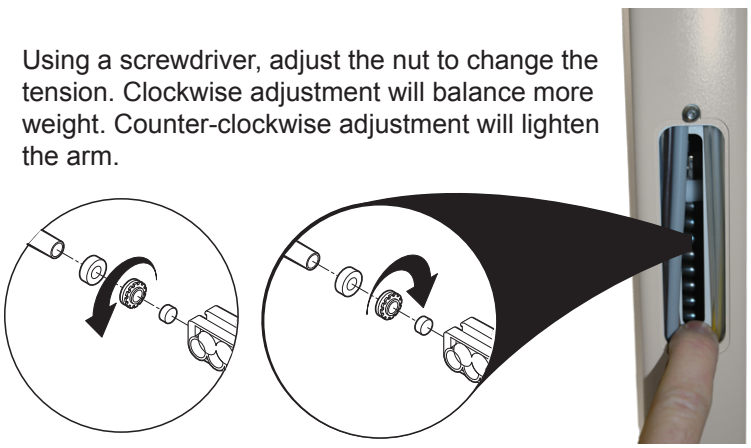


2. Using 5/64" allen wrench remove the two screws. (figure 2).



3. Spring tension is set by turning the star nut up or down along the rod. (figure 3)

Using a screwdriver, adjust the nut to change the tension. Clockwise adjustment will balance more weight. Counter-clockwise adjustment will lighten the arm.



Installation

1. Install the chair adapter as per instructions provided with the chair adapter.
2. Place the shipping carton in the desired location. Remove the unit with arm system and unit/light post (if ordered) from the shipping carton.

NOTE

If the unit/light post has a hole drilled in the side for the umbilical, orient the post so the hole is facing toward the foot of the chair.

3. Insert the unit/light post into the chair adapter hub as designated by label on light post which indicates the end of the post that the adaptor is installed. Level, then tighten the set screws to secure the post in place.
4. Slide the arm stop collar and washer down the post. Tighten the set screws to secure the stop collar at the desired height.
5. Slide the unit with arm system down the post until it rests on the stop collar and washer.

WARNING

The arm system is spring loaded. Before removing the safety tie strap, firmly grasp the flex arm and hold down.

6. Cut the safety tie strap and carefully release the arm system.
7. Rotate the flex arm in a counter-clockwise direction so that the umbilical tubings do not become crimped or twisted.
8. The flex arm rotational stop consists of a ¼ - 28 dog point set screw inserted in the end of the rigid arm. This set screw and end cap are shipped with the stop collar. The set screw will engage a slot in the knuckle, and should be inserted fully, then backed off one half turn. Lastly, install the endcap.
9. Feed the umbilical into the hole in the unit/light post, pulling it out through the bottom of the post.
10. Mount the utility center housing to the floor as per instructions in the Utility Center Template & Guide.
11. Install master valve assemblies, with filter and regulator, onto the manual shut-off valves. (Pressures are preset at the factory: 80 psi air, 40 psi water).
12. Feed the supply tubings from the umbilical through the 3/4" hole in the utility center housing. Screw in the spiral tubing to act as a strain relief.
13. Connect the supply tubings as shown in the Utility Center Template & Guide.
14. Place the non slip pad and tray, or tray with non-skid feet on the control head lid.

Final Adjustments

Check air pressure, adjust to 80 psi if necessary.
Check water pressure, adjust to 40 psi if necessary.
Test handpieces for proper function.
Test syringe for proper pressure and function.
Adjust flex arm tension, if necessary.

Operation

1. Turn on the master switch located on the left side of the control head.
2. The handpiece is automatically activated when lifted from the holder.
3. Depress the foot control to activate each handpiece. Pressure is shown on the gauge for the handpiece being used.
4. Individual handpiece pressure adjustments are located on the autoblock inside the control head. To adjust the pressure to each handpiece:
   a. Turn adjustment screw clockwise to decrease the handpiece pressure.
   b. Turn adjustment screw counter-clockwise to increase the handpiece pressure.

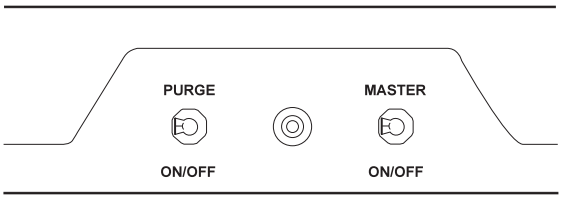
CAUTION

When adjusting the handpiece pressure, do not over-tighten the screws. Damage may result.

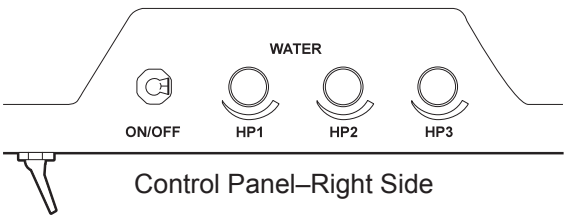
5. Activate the water spray to the handpiece by flipping the toggle for the water located on the right side of the control head.
6. Water coolant flow adjustments are located on the right side of the control head.
7. Arm brake switch is located underneath the control head on the right side. The brake is on when the toggle is positioned towards the rear. Pull the lever forward to release the arm brake, adjust arm to desired location and move lever to the rear to reapply the brake.

Handpiece Purge

The purge switch, located on the left side of the control head, flushes fresh water through the water coolant system. Guidelines from the Center for Disease Control (CDC) recommends that each handpiece be flushed (purged) 20 to 30 seconds between patients and several minutes at the beginning of each day. Handpieces must be removed from the holder to activate the purge system.



Control Panel–Left Side



Control Panel–Right Side

Troubleshooting

Symptom Handpiece lacks power.

Possible Causes

A. Improper supply pressure from compressor (80 psi).
B. Check handpiece pressure adjustment on unit.
C. Air filter may be plugged.
D. Pinched supply tubing.
E. Defective handpiece gasket at connection with tubing.
F. Defective handpiece.

Symptom Water coolant does not shut off when foot control is released.

Possible Causes

A. Adjust air pressure to 80 psi—water pressure to 40 psi.
B. Foot control is not exhausting.
C. Defective water relay valve.

Symptom More than one handpiece is operating.

Possible Causes

A. Handpiece is not all the way in the holder.
B. Improper adjustment on pilot valve in the handpiece holder.
C. Defective shuttle valve to gauge.

Symptom Insufficient water coolant.

Possible Causes

A. Adjust coolant flow valve.
B. Water filter may be plugged.
C. Handpiece may be plugged.
D. Pinched supply tubing.
E. Defective water relay valve.

Symptom Water coolant is running from handpiece while in the holder.

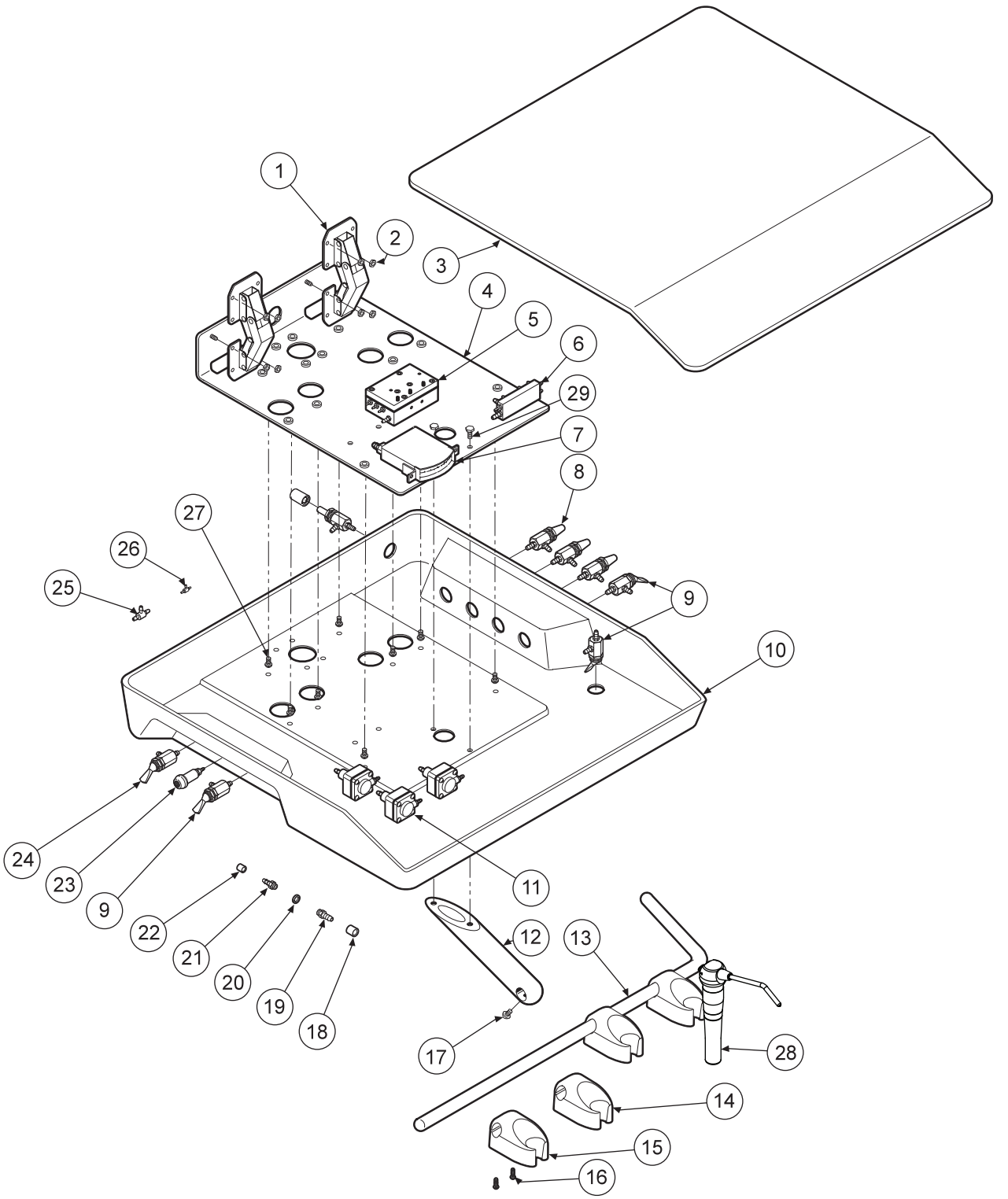
Possible Causes

A. Water pressure too high.
B. Air pressure too low.
C. Handpiece holder out of adjustment.

Symptom Water coolant is running continuously.

Possible Causes

A. Purge switch is on (on applicable systems).
B. Water pressure to high.
C. Handpiece holder out of adjustment.
D. Defective water relay valve.

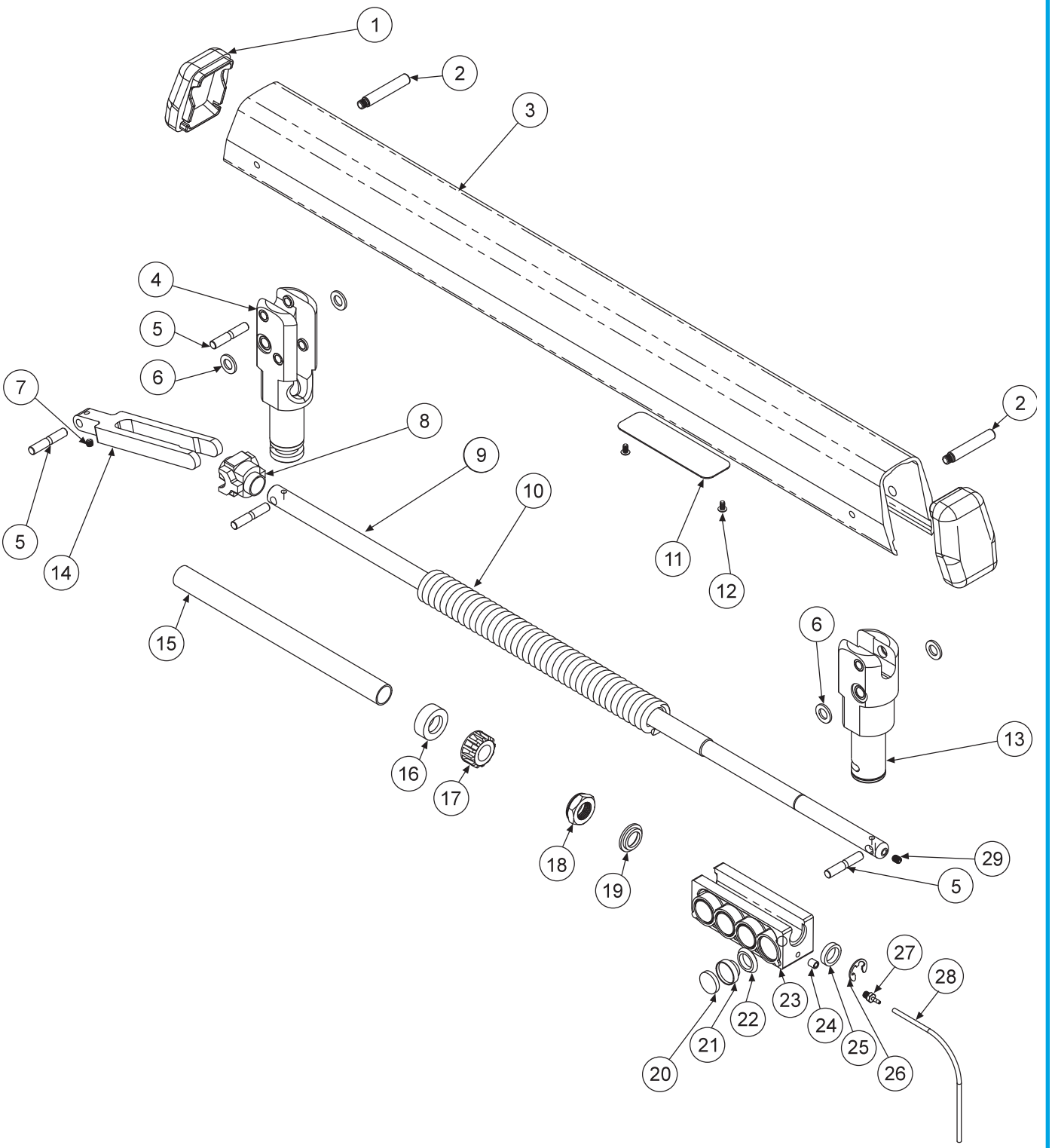


ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Hinge	107-083	2
2	Hex Nut 6-32	002-004	8
3	Cover	107-112	1
4	Chassis	107-110	1
5	Automatic Handpiece Block	125-030	1
6	Handpiece Manifold	023-001	1
7	Gauge	026-023	1
8	Needle Flow Valve	121-000	4
9	3-way Toggle Valve	120-000	3
10	Base	107-111	1

ITEM	PART DESCRIPTION	PART NUMBER	QTY
11	Water Relay Valve	123-000	3
12	Holder Bar Mount	107-007	1
13	Holder Bar	107-006	1
14	Automatic Holder	122-100	3
15	Syringe Holder	141-100	1
16	Screw, 8 x 1/2"	001-018	8
17	Screw, 10-32 x 3/8"	001-070	1
18	Ferrule, 1/4"	117-008	2
19	Barb, 10-32 x 1/8"	022-010	4
20	Plastic Washer,1/4"	003-001	13

ITEM	PART DESCRIPTION	PART NUMBER	QTY
21	Barb, 10-32 x 1/16"	022-009	9
22	Ferrule, 1/8"	117-007	32
23	Indicator	026-020	1
24	Momentary Valve	120-005	1
25	Shuttle Valve	014-012	1
26	Plastic Tee, 1/16"	022-033	1
27	Screw, 8-32 x 3/8"	001-151	4
28	Syringe	113-400	1
29	Screw 10-32 x 1/2"	001-166	2

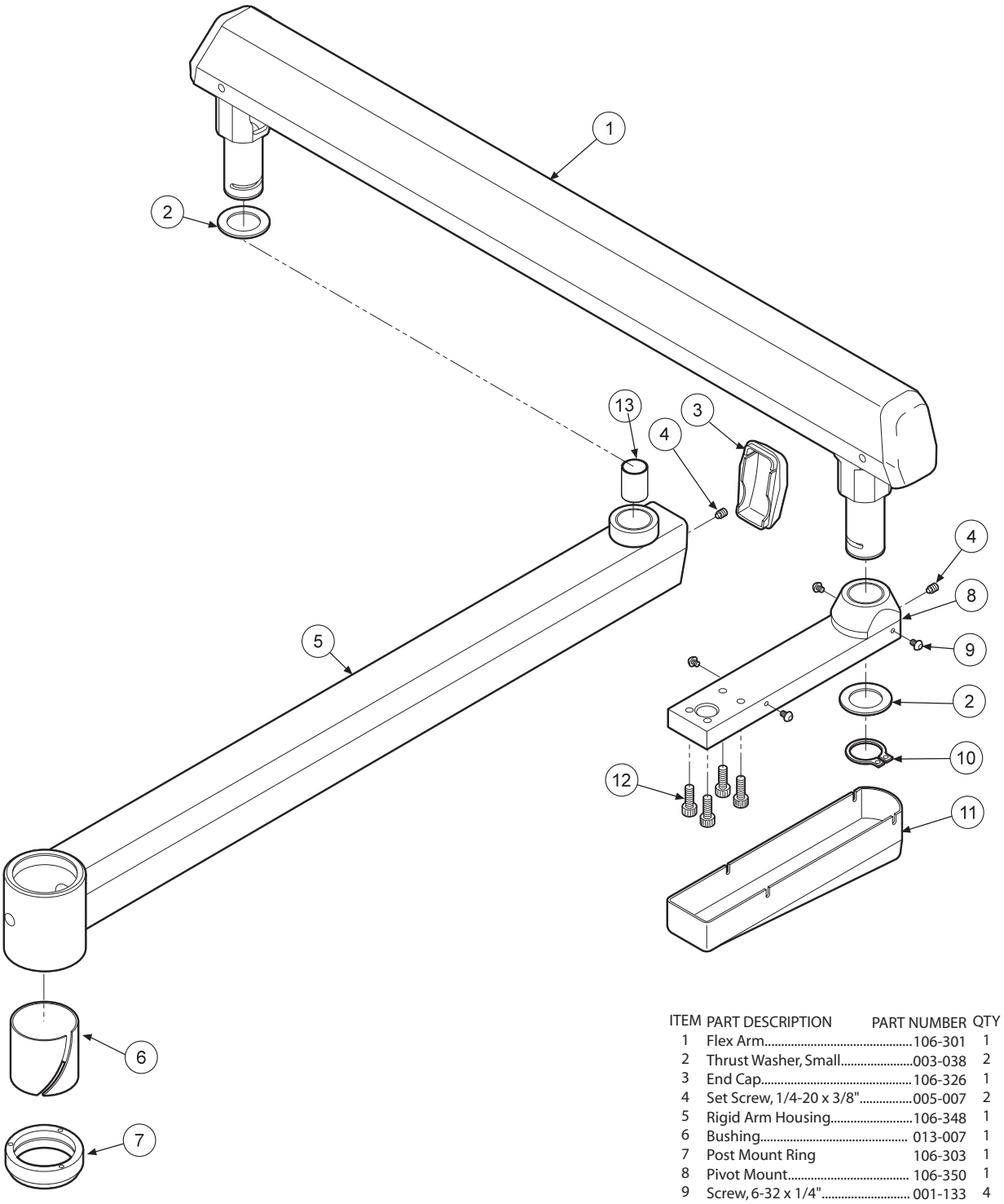
AUTOMATIC HANDPIECE CONTROL
S-3300



ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	End Cap	106-319	2
2	Pin, Arm Housing	009-030	2
3	Arm Housing	106-314	1
4	Arm Knuckle	106-322	1
5	Pin Rod	009-031	3
6	Plastic Washer	003-040	4
7	Set Screw, 10-32 x 3/16"	005-037	1
8	Spring Slider	106-311	1
9	Rod	106-327	1
10	Spring	008-019	1

ITEM	PART DESCRIPTION	PART NUMBER	QTY
11	Plug Adjustment	106-329	1
12	Screw, 6-32 x 1/4"	001-133	2
13	Head Knuckle	106-337	1
14	Arm Fork Link	106-318	1
15	Sleeve.	106-321	1
16	Seat, Flex Arm Spring	106-320	1
17	Adjustment Nut	106-325	1
18	Nut, Hex, Jam 9/16-18, Nylon Insert	002-011	1
19	Collar, w/Shoulder, Brake, Flex.	106-338	1
20	Brake Pad	106-313	8

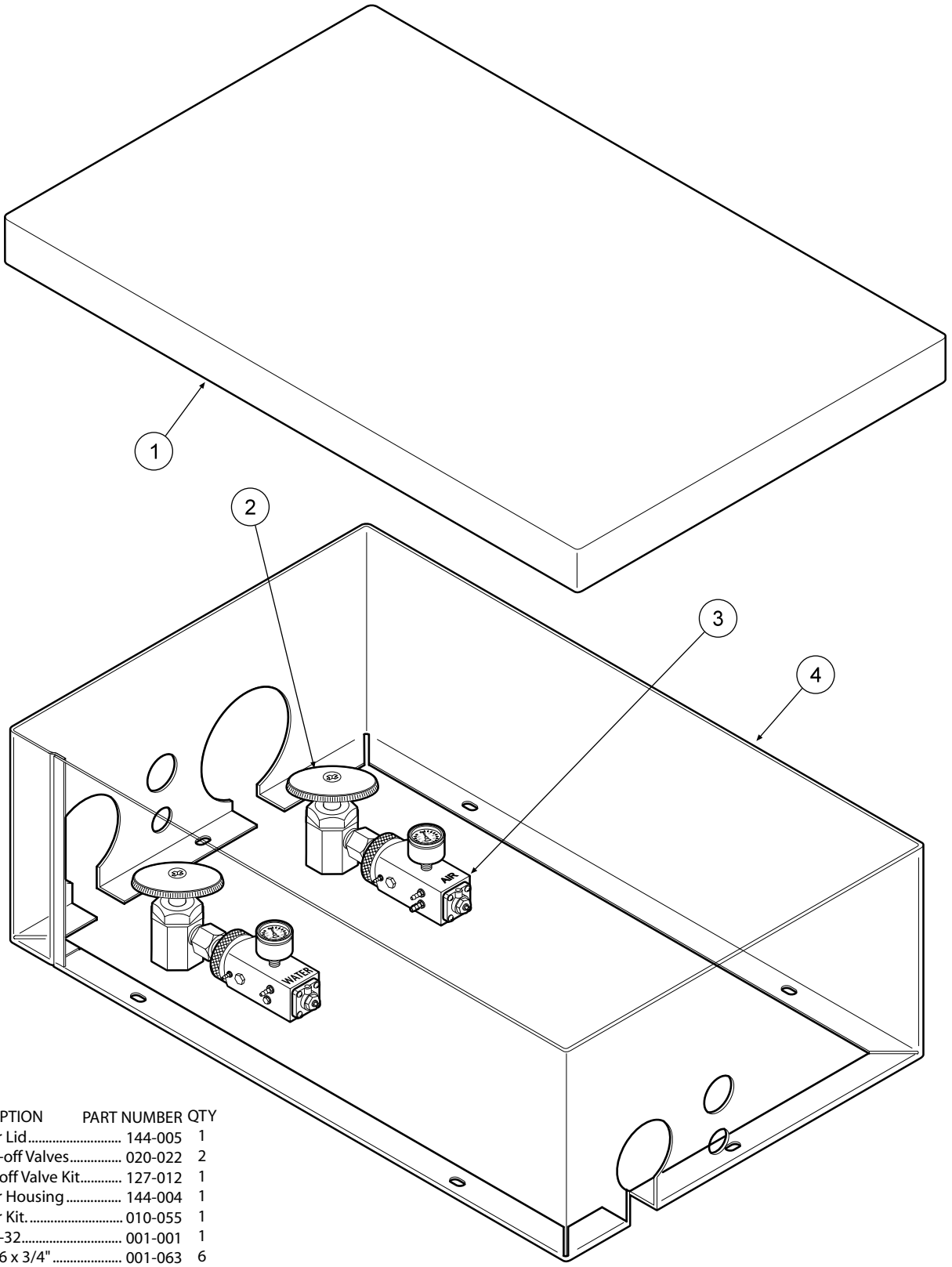
ITEM	PART DESCRIPTION	PART NUMBER
21	Piston, Brake	106-317
22	U-Cup.	017-204
23	Brake Housing.	106-316
24	Ferrule, Delrin, 1/8"	117-007
25	Brake Collar, Threaded	106-324
26	Ring, Truarc, 5133-43	006-004
27	Barb 10-32 x 1/16"	022-059
28	1/8" Supply Line, Black	115-028
29	Socket Set Screw, 10-32 x 1/4"	005-035



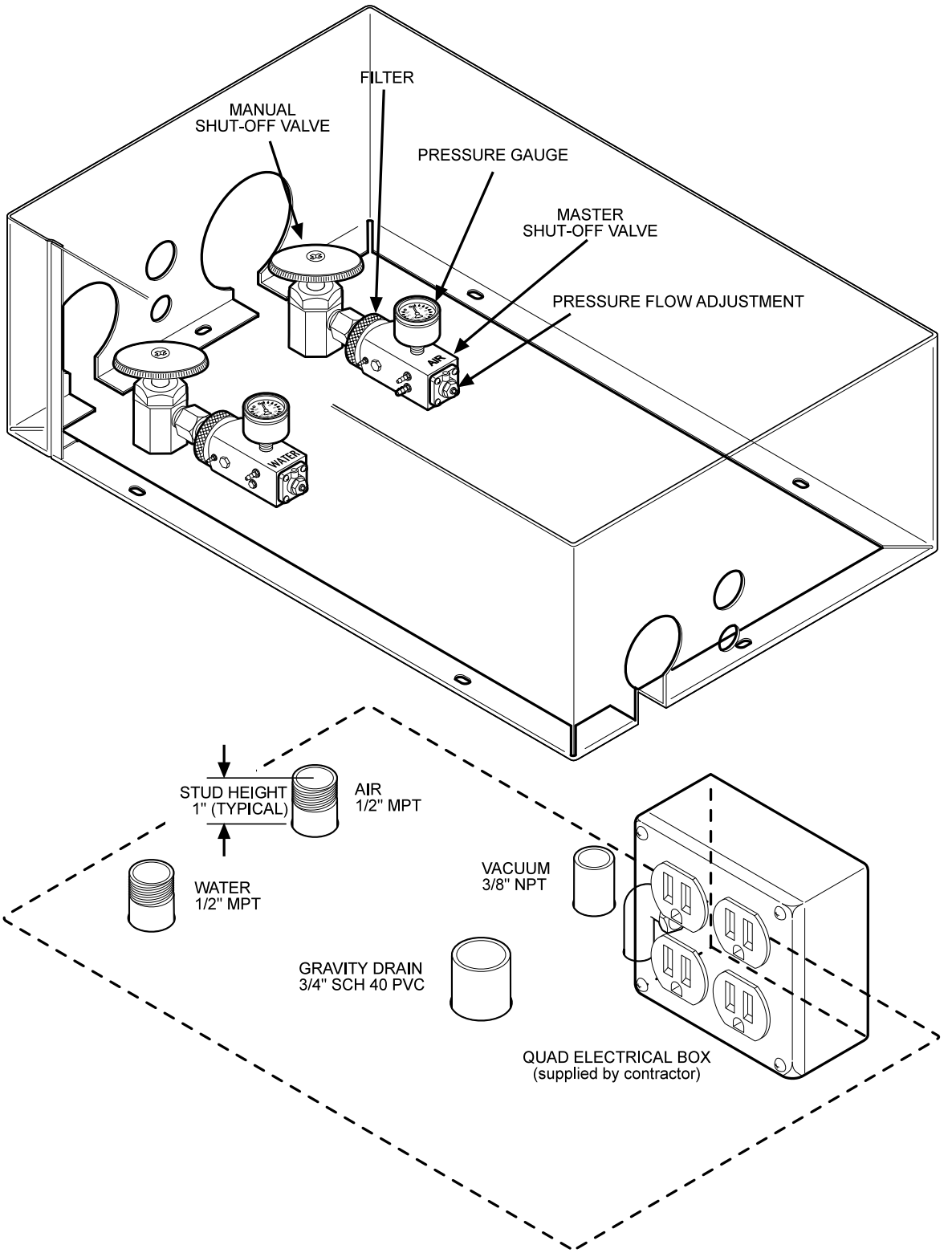
ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Flex Arm	106-301	1
2	Thrust Washer, Small	003-038	2
3	End Cap	106-326	1
4	Set Screw, 1/4-20 x 3/8"	005-007	2
5	Rigid Arm Housing	106-348	1
6	Bushing	013-007	1
7	Post Mount Ring	106-303	1
8	Pivot Mount	106-350	1
9	Screw, 6-32 x 1/4"	001-133	4
10	Snap Ring	006-002	1
11	Pivot Mount Cover	106-352	1
12	Screw, 10-32 x 1"	001-140	4
13	Bushing	013-019	1

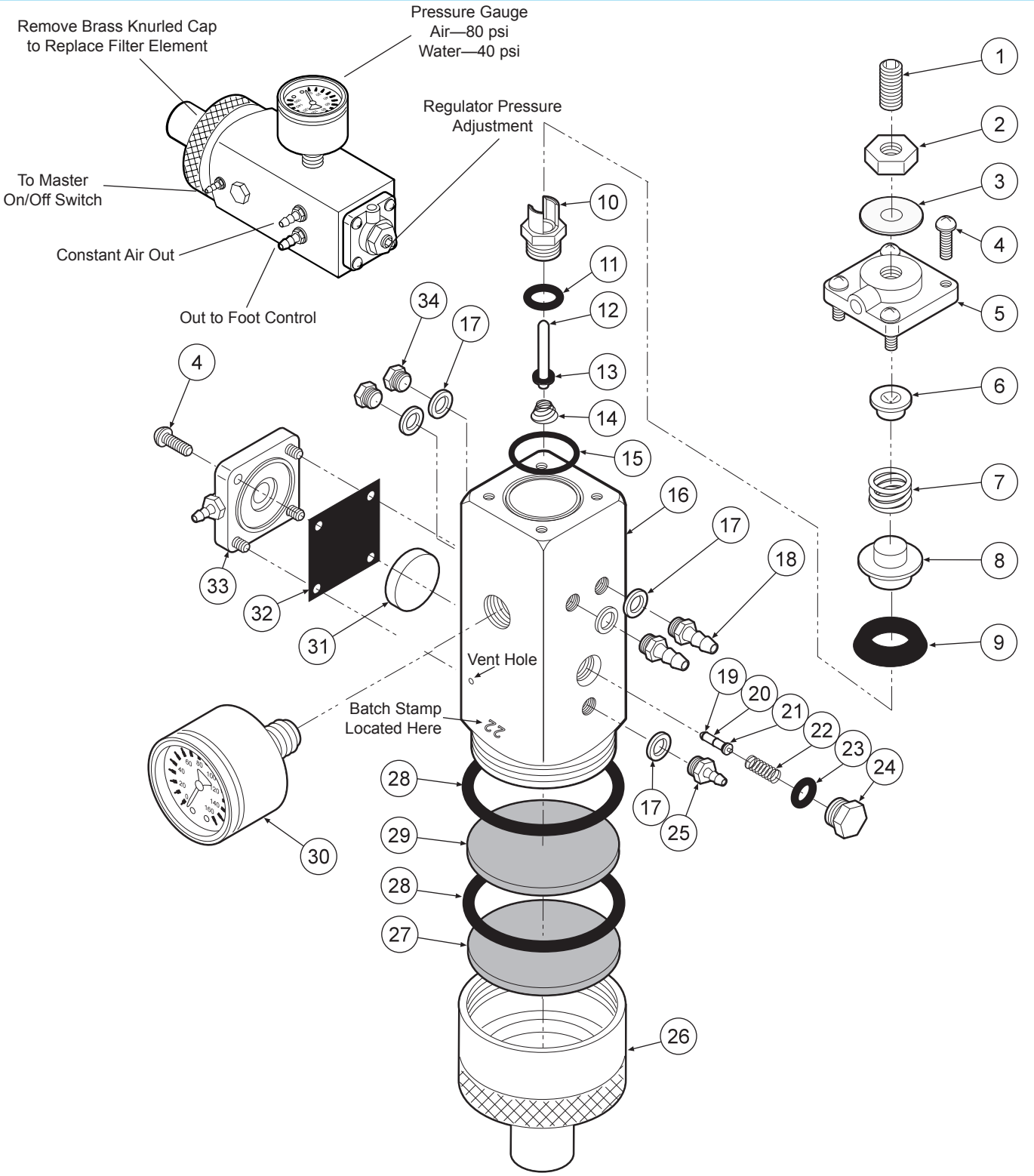
FLEX ARM SYSTEM WITH PNEUMATIC BRAKE, 2" POST MOUNT

106-300



ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Utility Center Lid	144-005	1
2	Manual Shut-off Valves	020-022	2
3	Master Shut-off Valve Kit	127-012	1
4	Utility Center Housing	144-004	1
	Utility Center Kit.	010-055	1
	Plug ,10-32	001-001	1
	Screw, #6 x 3/4"	001-063	6
	Plastic Washer, 1/4"	003-001	2
	Plug, 3/4"	010-005	2
	Plug, 1-3/8"	010-008	1
	Plug, 1/2"	010-013	1
	Plug, 1-1/2"	010-015	1
	Plug, 2-1/4"	010-017	1
	Plug, 13/16"	010-016	2
	Barb, 10-32 x 1/16"	022-009	1
	Barb, 10-32 x 1/8"	022-010	1
	Ferrule, 1/8"	117-007	4

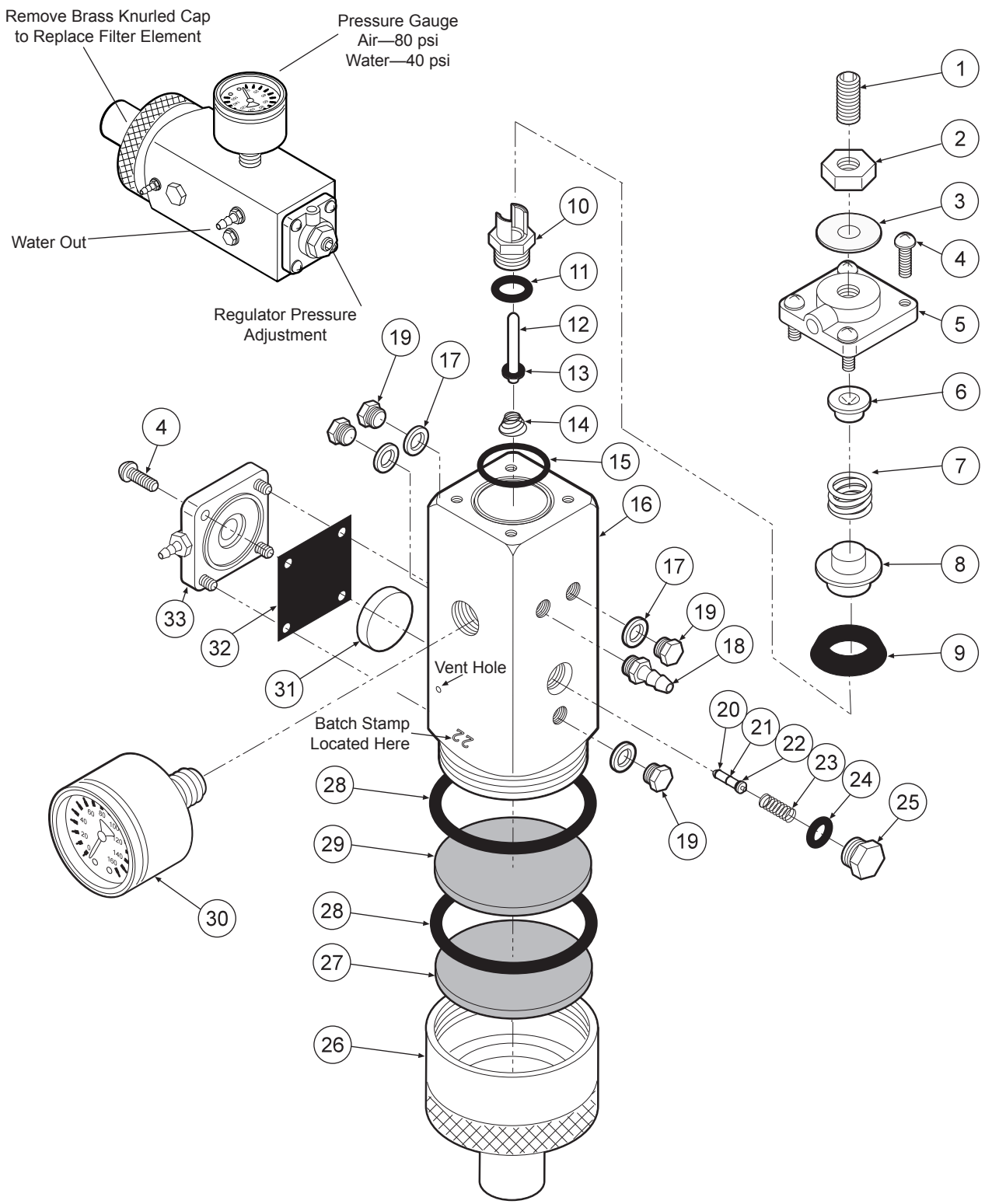

FILTER
MANUAL
SHUT-OFF VALVE
PRESSURE GAUGE
MASTER
SHUT-OFF VALVE
PRESSURE FLOW ADJUSTMENT
AIR
WATER
STUD HEIGHT
1" (TYPICAL)
AIR
1/2" MPT
WATER
1/2" MPT
VACUUM
3/8" NPT
GRAVITY DRAIN
3/4" SCH 40 PVC
QUAD ELECTRICAL BOX
(supplied by contractor)



ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Set Screw, 1/4-20 x 5/8"	005-024	1
2	Jam Nut, 1/4-20	002-006	1
3	Washer	003-015	1
4	Screw, 6-32 x 3/8"	001-041	8
5	Cap	127-033	1
6	Spring Seat	127-043	1
7	Spring	008-008	2
8	Cup Seat	127-044	1
9	Cup Seal	017-200	4
10	Seat	127-026	3
11	O-Ring, 008	017-008	2
12	Stem	127-024	1

ITEM	PART DESCRIPTION	PART NUMBER	QTY
13	O-Ring, 004	017-104	1
14	Spring	008-028	1
15	O-Ring	017-018	1
16	Body	127-040	1
17	Plastic Washer, 1/4"	003-001	5
18	Barb, 10-32 x 1/8"	022-010	2
19	O-Ring, 001	017-501	2
20	Stem	127-042	1
21	O-Ring, 003	017-103	1
22	Spring	008-040	1
23	O-Ring, 007	017-007	1

ITEM	PART DESCRIPTION	PART NUMBER	QTY
24	Plug	020-026	1
25	Barb, 10-32 x 1/16"	022-009	1
26	Cap Inlet	127-041	1
27	Filter Element, 100 Micron	119-005	1
28	O-Ring, 018	017-022	2
29	Filter Element, 35 Micron	119-004	1
30	Gauge	026-001	1
31	Piston	123-014	1
32	Gasket	127-031	1
33	Cap	123-030	1
34	Plug	001-001	2

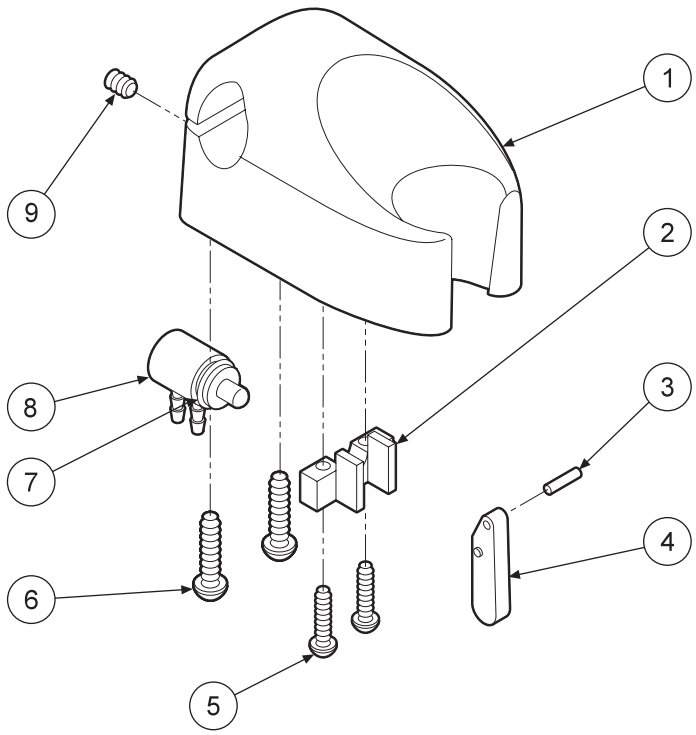

Remove Brass Knurled Cap to Replace Filter Element
Pressure Gauge Air—80 psi Water—40 psi
Water Out
Regulator Pressure Adjustment
Vent Hole
Batch Stamp Located Here

ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Set Screw, 1/4"-20 x 5/8"	005-024	1
2	Jam Nut, 1/4"-20	002-006	1
3	Washer	003-015	1
4	Screw, 6-32 x 3/8"	001-041	8
5	Cap	127-023	1
6	Spring Seat	127-043	1
7	Spring	008-008	1
8	Cup Seat	127-044	1
9	Cup Seal	017-200	1
10	Seat	127-026	1
11	O-Ring, 008	017-008	1

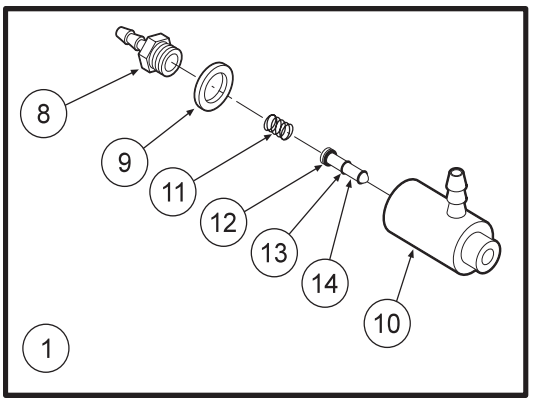
ITEM	PART DESCRIPTION	PART NUMBER	QTY
12	Stem	127-024	1
13	O-Ring, 004	017-104	1
14	Spring	008-028	1
15	O-Ring	017-018	1
16	Body	127-040	1
17	Plastic Washer, 1/4"	003-001	1
18	Barb, 10-32 x 1/8"	022-010	1
19	Plug	001-001	4
20	O-Ring, 001	017-501	2
21	Stem	127-042	1
22	O-Ring, 003	017-103	1

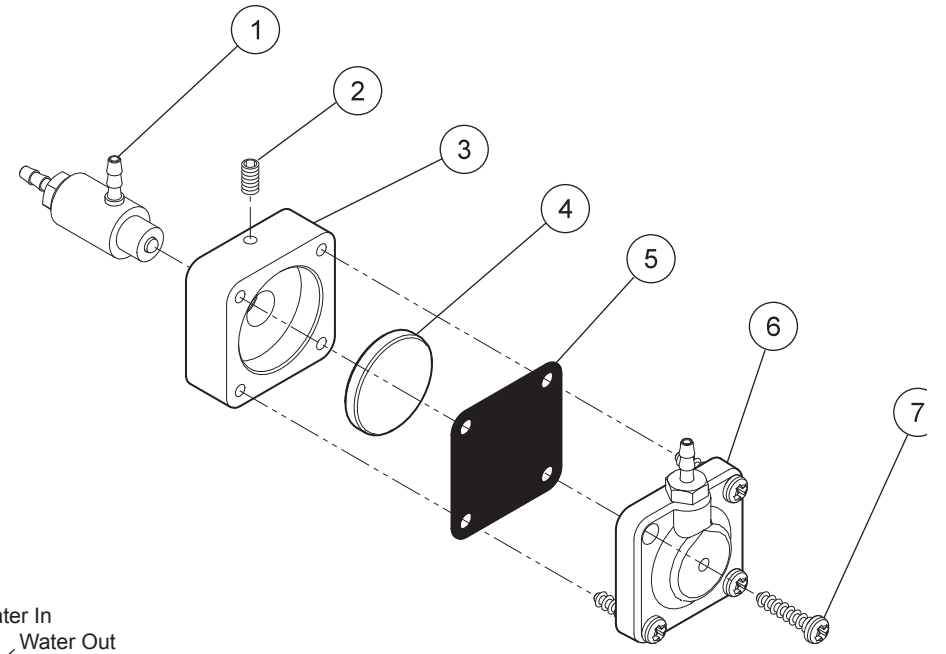
ITEM	PART DESCRIPTION	PART NUMBER	QTY
23	Spring	008-040	1
24	O-Ring, 007	017-007	1
25	Plug	020-026	1
26	Cap Inlet	127-041	1
27	Filter Element, 100 Micron	119-005	1
28	O-Ring, 018	017-022	2
29	Filter Element, 35 Micron	119-004	1
30	Gauge	126-001	1
31	Piston	123-014	1
32	Gasket	127-031	1
33	Cap	123-012	1

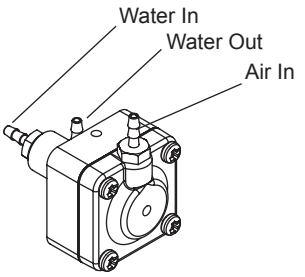
MASTER VALVE-WATER
127-010-WATER



ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Molded Body	122-101	1
2	Molded Clip	122-102	1
3	Pin, 1/16" x 5/16"	009-010	1
4	Handpiece Actuator Lever	122-103	1
5	Screw, 4 x 1/2"	001-019	2
6	Screw, 8 x 1/2"	001-018	2
7	Washer Tray Mount Spacer	003-004	1
8	Automatic Holder Valve	122-031	1
9	Set Screw, 6-32 x 3/16"	005-019	1

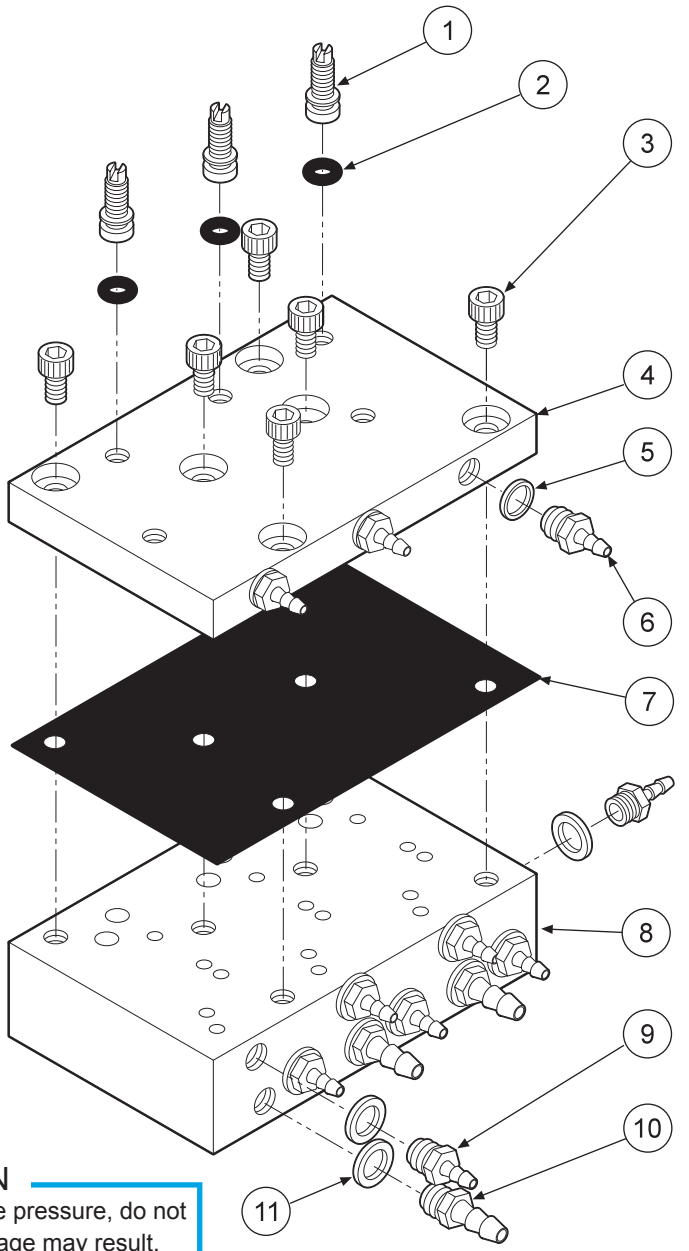






ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Cartridge Body Assembly	123-018	1
2	Set Screw, 4-40 x 5/8"	005-028	1
3	Body	123-013	1
4	Piston	123-014	1
5	Diaphragm	123-016	1
6	Cap	123-012	1
7	Screw, #6 x 1/2"	001-017	4
8	Barb, 10-32 x 1/16"	022-009	1
9	Plastic Washer, 1/4"	003-001	1
10	Valve Body	123-017	1
11	Spring	008-011	1
12	O-Ring, 002	017-502	1
13	O-Ring, 001	017-501	2
14	Stem	123-015	1

NON-RETRACTION WATER RELAY VALVE
123-000



CAUTION

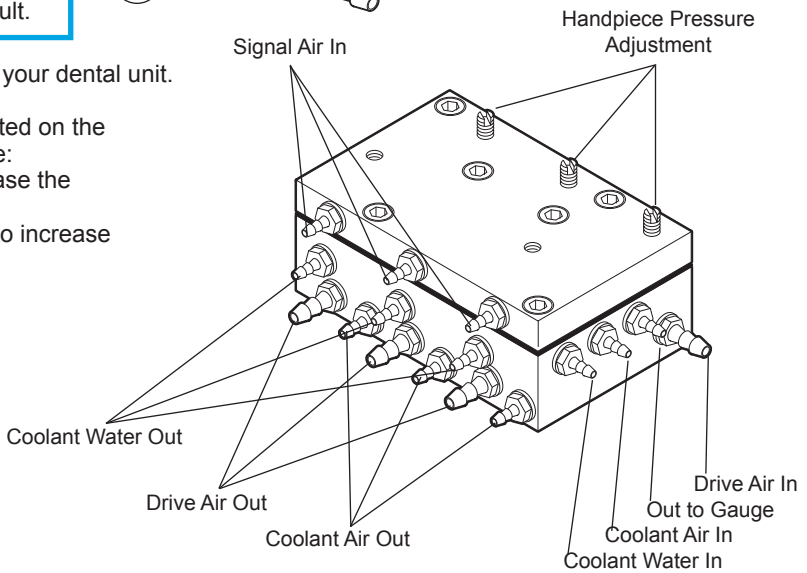
When adjusting the handpiece pressure, do not over-tighten the screws. Damage may result.

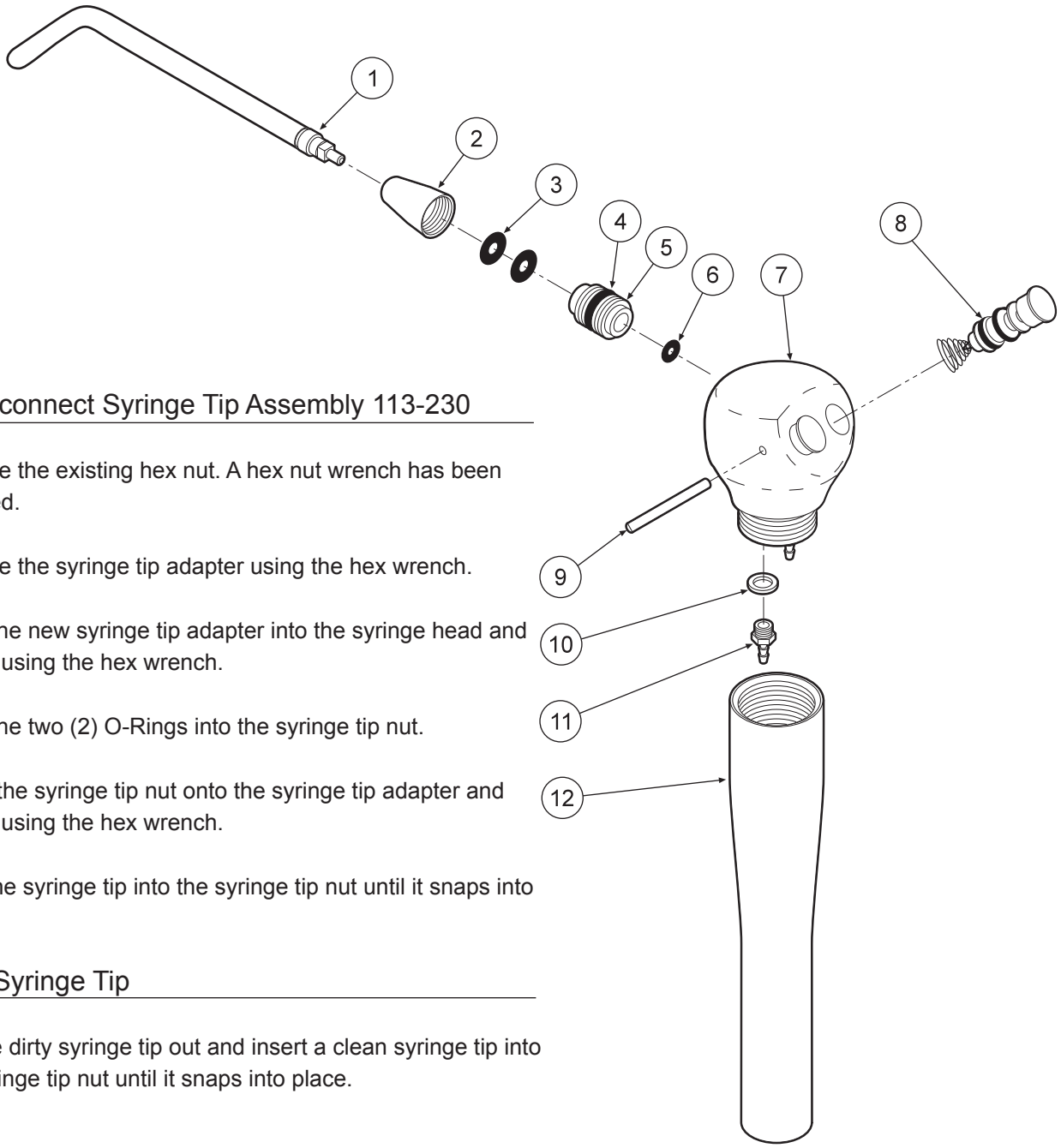
The automatic control block is the control center for your dental unit.

Individual handpiece pressure adjustments are located on the autoblock. To adjust the pressure to each handpiece:

a. Turn adjustment screw clockwise to decrease the handpiece pressure.
b. Turn adjustment screw counter-clockwise to increase the handpiece pressure.

ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Adjusting Stem	125-023	3
2	O-Ring, 021	017-021	3
3	Screw, 6-32 x 1/4"	001-131	7
4	Cap	125-032	1
5	Plastic Washer, 8-32 x 1/16"	003-030	3
6	Barb, 8-32 x 1/16"	022-040	3
7	Diaphragm	125-016	1
8	Body	125-031	1
9	Barb, 10-32 x 1/16"	022-009	9
10	Barb, 10-32 x 1/8"	022-010	4
11	Plastic Washer, 1/4"	003-001	13





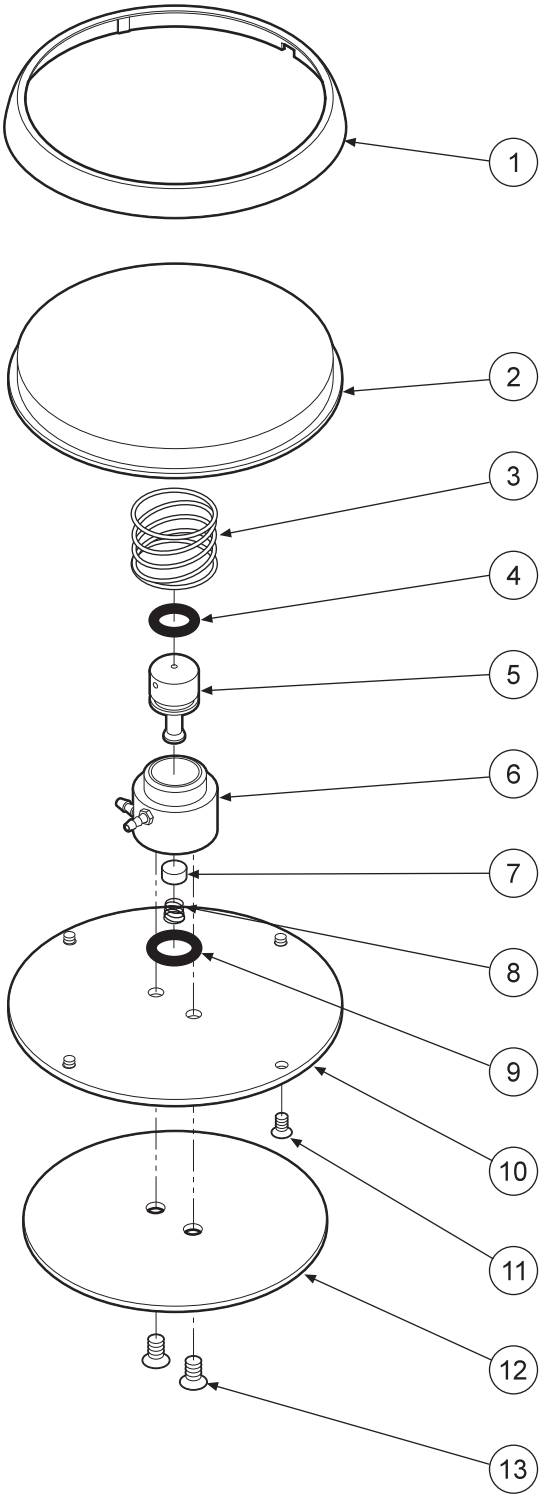
Quick-disconnect Syringe Tip Assembly 113-230

1. Remove the existing hex nut. A hex nut wrench has been provided.
2. Remove the syringe tip adapter using the hex wrench.
3. Insert the new syringe tip adapter into the syringe head and tighten using the hex wrench.
4. Place the two (2) O-Rings into the syringe tip nut.
5. Screw the syringe tip nut onto the syringe tip adapter and tighten using the hex wrench.
6. Push the syringe tip into the syringe tip nut until it snaps into place.

Replace Syringe Tip

1. Pull the dirty syringe tip out and insert a clean syringe tip into the syringe tip nut until it snaps into place.

ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Syringe Tip	113-030	1
2	Syringe Tip Nut	113-402	1
3	O-Ring, 006	017-006	2
4	O-Ring, 228-040	017-023	1
5	Syringe Tip Adapter	113-227	1
6	O-Ring, 003	017-003	1
7	Syringe Head	113-405	1
8	Syringe Button Repair Kit	113-403	2
9	Pin, Syringe Cartridge	113-008	1
10	Plastic Washer, 8-32	003-030	2
11	Barb, 8-32 x 1/16”	022-040	2
12	Syringe Handle	113-236	1



ITEM	PART DESCRIPTION	PART NUMBER	QTY
1	Ring	126-002	1
2	Cover	126-001	1
3	Spring	008-005	1
4	O-Ring, 012	017-012	1
5	Stem	126-005	1
6	Body	126-004	1
7	Poppet	126-006	1
8	Spring	008-006	1
9	O-Ring, 013	017-013	1
10	Baseplate	126-003	1
11	Screw, 4-40 x 1/4"	001-005	4
12	Rubber Pad	126-007	1
13	Screw, 6-32 x 1/4"	001-004	2
	Repair kit	126-025	

FOOT CONTROL
126-000